 National Transportation Safety Board FACTUAL REPORT AVIATION		NTSB ID: IAD04LA022		Aircraft Registration Number: N12PX	
		Occurrence Date: 05/22/2004		Most Critical Injury: Fatal	
		Occurrence Type: Accident		Investigated By: NTSB	
Location/Time					
Nearest City/Place Alexandria	State PA	Zip Code 16611	Local Time 1641	Time Zone EDT	
Airport Proximity: Off Airport/Airstrip		Distance From Landing Facility:		Direction From Airport:	
Aircraft Information Summary					
Aircraft Manufacturer Masak		Model/Series Scimitar		Type of Aircraft Glider	
Sightseeing Flight: No			Air Medical Transport Flight: No		
Narrative					
Brief narrative statement of facts, conditions and circumstances pertinent to the accident/incident:					
HISTORY OF FLIGHT					
<p>On May 22, 2004, at 1641 eastern daylight time, a homebuilt Scimitar, N12PX, was destroyed when it impacted a tree in mountainous terrain near Alexandria, Pennsylvania. The certificated private pilot was fatally injured. Visual meteorological conditions prevailed, and no flight plan had been filed for the flight, which departed Mifflin County Airport (RVL), Reedsville, Pennsylvania, about 1425. The competition flight was conducted under 14 CFR Part 91.</p> <p>According to a member of the Soaring Society of America, the accident pilot was participating in the 15 Meter Nationals competition. The competition consisted of a "Modified Assigned Task" (MAT), with a 2.5-hour minimum time aloft constraint.</p> <p>The task area included a "start cylinder" with a 5-statute-mile radius and 5,000-foot agl top centered about 6 statute miles southeast of Mifflin County Airport, one mandatory 1-mile-radius turn point at Mill Creek, Pennsylvania, about 19 statute miles southwest of the airport, 34 additional 1-mile-radius turn points, and a finish line at the airport, about 3,000 feet northwest of the mid-point of runway 06-24.</p> <p>According to MAT rules, after a pilot passed the mandatory turn point, he could visit other turn points of his choice within the task area, with an objective of returning to the finish line at Mifflin County 2 1/2 hours or greater after starting. The pilot could return and finish in less than 2 1/2 hours, but his score would be penalized. A pilot could not repeat a turn point unless at least two other turn points had been reached in the interim, and a maximum of 11 turn points was permitted, not counting the start and finish. If the pilot returned to the airport for a valid finish, he would be scored on time and distance achieved.</p> <p>The task area extended approximately 50 statute miles to the north, east, and south of the airport, and 90 statute miles to the southwest. Within the task area, there was a ridgeline running from southwest to northeast, about 035 degrees magnetic, which peaked at 2,350-foot Tussey Mountain. The ridgeline then turned back on itself, to the southwest, about 240 degrees magnetic for approximately 2 statute miles, and varied in elevation between approximately 1,900 and 2,000 feet. The ridgeline then peaked again, about 2,100 feet, and turned back toward the north, heading 020 degrees magnetic, while maintaining about 1,900 feet of elevation. To the northeast of the ridgeline, the terrain flattened out to an elevation of about 950 feet.</p> <p>Each glider had an onboard, GPS-based flight recorder, and the accident glider's recorder was subsequently forwarded to the Safety Board for download. The investigating engineer's Special Study revealed that the flight began at 1425, and the glider flew first to Jack's Mountain, "a well defined southwest to northeast running ridgeline approximately 1,600 feet msl in elevation." The glider then "thermal-soared" Jack's Mountain for approximately 1 hour, while executing multiple</p>					
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Narrative (Continued)

climbs from approximately 2,900 feet msl to 4,800 feet msl, and passing into the start cylinder several times.

The glider subsequently proceeded down-ridge, to the southwest, to "momentarily" enter the mandatory turn point cylinder about 1534. The glider then proceeded up-ridge, and momentarily entered a turn point near the airport about 1556.

The glider then proceeded down-ridge once again, turned to the west and crossed over Stone Mountain, then proceeded over the northern end of Huntingdon, Pennsylvania, at 3,300 feet msl. The glider subsequently entered the "complex ridge line" of Tussey Mountain, heading south, between the eastern ridge fold and the western ridge fold, about 1,900 feet msl. The eastern fold of the ridge system, abeam where the glider entered, extended up to approximately 2,250 feet. The "pocket" of the fold, southwest the pilot's entry point, extended up, to about 2,000 feet msl, while the ridgeline west of the pilots entry point extended up to approximately 1,500 feet msl.

The recording stopped at 1641:20, with the glider at 1,932 feet, and a groundspeed of 28.3 mph. A review of the graphical presentation of information revealed that during the last 6 minutes of flight, the glider descended about 1,400 feet.

The accident occurred at 40 degrees, 29.94 minutes north latitude, 78 degrees, 08.49 minutes west longitude.

PILOT INFORMATION

The accident pilot held a private pilot certificate, with airplane single engine land, and glider ratings based on a Canadian pilot license. The pilot was not required to have a medical certificate for glider operations; however, on his latest FAA second class medical certificate, issued June 7, 1999, the pilot indicated 1,743 hours of flight time. As of March 27, 2004, the pilot had recorded 1961.1 hours in his logbook; however, the pilot had skipped many of the lines near the end of the entries. The pilot also recorded, in the glider's aircraft logbook between May 14, 2000, and May 24, 2003, 104 hours of flight time. In addition, the pilot recorded his participation in numerous cross country flights and international competitions.


METEROLOGICAL INFORMATION

Weather, reported at an airport about 15 miles to the southwest, about the time of the accident, included winds from 280 degrees true at 12 knots, 10 miles visibility, a few clouds at 6,000 feet, temperature 81 degrees F, dew point 64 degrees F, and a barometric pressure of 29.91 inches of mercury.

In the Special Study, the investigating engineer calculated GPS-derived thermal drift to be 270 degrees at 16 mph, between 1,800 feet msl and 3,000 feet msl, at nearby Huntingdon. According to the engineer's report, "This eastward-flowing air would have created an area of turbulence and downdrafts...in the region of the crash site."

WRECKAGE INFORMATION

The wreckage was located on the southeast side of a canyon "pocket" formed by the ridgelines, about 290 degrees, 1/2 statute mile from the peak of Tussey Mountain, at a 1,750-foot elevation. According to a Federal Aviation Administration (FAA) inspector, the majority of the fuselage was located in a "V" of a tree, and all flight control surfaces were accounted for at the accident scene. Photographs provided by the inspector revealed that the glider's right wing extended vertically, down along the trunk of the tree, and the tip was in contact with the ground. A part of the left wing, estimated to be about 10 feet in length, was leaning against the other side of the tree, with the leading edge along the ground and the trailing edge up against the tree.

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Narrative (Continued)

MEDICAL AND PATHOLOGICAL INFORMATION

An autopsy was performed on the pilot at J.C. Blair Memorial Hospital, Huntingdon, Pennsylvania, under the auspices of the Huntingdon County, Pennsylvania, Coroner. Toxicological testing was subsequently performed at the FAA Bioaeronautical Research Laboratory, Oklahoma City, Oklahoma.

ADDITIONAL INFORMATION


A glider instructor pilot/designated pilot examiner, who was also a world record holder, flight safety counselor, and the author of numerous instructional books on the subject, subsequently flew over the area in a motor glider. According to a newsletter email he published, he retraced the accident flight, and while crossing the valley leading to the Tussey ridgeline, noted that "it would have been easily seen [that the accident pilot] would need to find some lift in order to clear the top of the mountain. It would [also] be obvious [that the accident pilot] would need to try ridge soaring another ridge in order to gain altitude."


The instructor also noted that the accident pilot "was obviously planning to fly to, and over Tussey Ridge, into ridge lift and then south to a turn point. If he were successful, he would have been the only pilot to do so, and probably would have easily won the day. Only two other pilots flew to a nearby turn point (Spruce Creek) and then returned towards the contest site."


The instructor further stated: "There is a very good landing field at the base of the ridge, and I am sure [that the accident pilot] was not concerned at all about being able to abort the attempt and land in this or any of several other fields nearby. As...I retraced his flight, I could not help believe I would have done the same thing in the same circumstances. The valley he was in was wide enough that a rather shallow turn could have been made, and I am also sure [the accident pilot's] confidence was buoyed by his slight gain in altitude. He could not fly further into the V-shaped valley, as terrain was rising in front of him. He would have tried to fly a sharp 180-degree turn to return to the lifting air he just passed. The flight track shows the glider losing 350 feet of altitude in a very small space, which can only be caused by a spin. It is in a heavily wooded area, and the glider hit a large tree."

The instructor also stated that the accident pilot had first flown from the instructor's airport in 1979, and that "he was an accomplished pilot. Why the glider spun probably won't be answered. Although the glider was called a Scimitar, it really was a Ventus after [the accident pilot] replaced his owned designed wings with Ventus wings a couple of years ago." In addition, the accident pilot was "instrumental in designing winglets for gliders, and even tried a sound-generated boundary device. I am unaware of any other modifications he might have made on his glider."

On June 2, 2004, the wreckage was released to a representative of the owner's insurance company, with the exception of the flight data recorder. The recorder was subsequently forwarded to the owner's family directly from the Safety Board Vehicle Recorders Division.

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Landing Facility/Approach Information					
Airport Name	Airport ID:	Airport Elevation Ft. MSL	Runway Used NA	Runway Length	Runway Width
Runway Surface Type: Unknown					
Runway Surface Condition: Unknown					
Type Instrument Approach: Unknown					
VFR Approach/Landing: Unknown					
Aircraft Information					
Aircraft Manufacturer Masak		Model/Series Scimitar		Serial Number 001	
Airworthiness Certificate(s): Experimental (Special)					
Landing Gear Type: Hull					
Homebuilt Aircraft? Yes	Number of Seats: 1	Certified Max Gross Wt. LBS		Number of Engines: 0	
Engine Type:	Engine Manufacturer:	Model/Series:		Rated Power:	
- Aircraft Inspection Information					
Type of Last Inspection Continuous Airworthiness	Date of Last Inspection 05/2003	Time Since Last Inspection Hours		Airframe Total Time Hours	
- Emergency Locator Transmitter (ELT) Information					
ELT Installed? Yes	ELT Operated? Yes	ELT Aided in Locating Accident Site? Yes			
Owner/Operator Information					
Registered Aircraft Owner Peter C. Masak		Street Address			
		City West Chester	State PA	Zip Code 19380	
Operator of Aircraft Same as Reg'd Aircraft Owner		Street Address Same as Reg'd Aircraft Owner			
		City	State	Zip Code	
Operator Does Business As:			Operator Designator Code:		
- Type of U.S. Certificate(s) Held: None					
Air Carrier Operating Certificate(s):					
Operating Certificate:			Operator Certificate:		
Regulation Flight Conducted Under: Part 91: General Aviation					
Type of Flight Operation Conducted: Personal					
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Name		City		State	Date of Birth																																																																															
On File		On File		On File	Age																																																																															
					46																																																																															
Sex: M	Seat Occupied: Single	Principal Profession: Non-Occupational Pilot		Certificate Number: On File																																																																																
Certificate(s): Private																																																																																				
Airplane Rating(s): Single-engine Land																																																																																				
Rotorcraft/Glider/LTA: Glider																																																																																				
Instrument Rating(s): None																																																																																				
Instructor Rating(s): None																																																																																				
Type Rating/Endorsement for Accident/Incident Aircraft?			Current Biennial Flight Review?																																																																																	
Medical Cert.: Class 2		Medical Cert. Status: Expired		Date of Last Medical Exam: 06/1999																																																																																
<table border="1"> <tr> <th rowspan="2">- Flight Time Matrix</th> <th rowspan="2">All A/C</th> <th rowspan="2">This Make and Model</th> <th rowspan="2">Airplane Single Engine</th> <th rowspan="2">Airplane Multi-Engine</th> <th rowspan="2">Night</th> <th colspan="2">Instrument</th> <th rowspan="2">Rotorcraft</th> <th rowspan="2">Glider</th> <th rowspan="2">Lighter Than Air</th> </tr> <tr> <th>Actual</th> <th>Simulated</th> </tr> <tr> <td>Total Time</td> <td>1961</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Pilot In Command(PIC)</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Instructor</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Last 90 Days</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Last 30 Days</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Last 24 Hours</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table>						- Flight Time Matrix	All A/C	This Make and Model	Airplane Single Engine	Airplane Multi-Engine	Night	Instrument		Rotorcraft	Glider	Lighter Than Air	Actual	Simulated	Total Time	1961										Pilot In Command(PIC)											Instructor											Last 90 Days											Last 30 Days											Last 24 Hours										
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Seatbelt Used? Yes		Shoulder Harness Used? Yes		Toxicology Performed? Yes																																																																																
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Flight Plan/Itinerary																																																																																				
Type of Flight Plan Filed: None																																																																																				
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Weather Information					
WOF ID	Observation Time	Time Zone	WOF Elevation	WOF Distance From Accident Site	Direction From Accident Site
AOO	1653	EDT	1504 Ft. MSL	15 NM	220 Deg. Mag.
Sky/Lowest Cloud Condition: Few			6000 Ft. AGL		Condition of Light: Day
Lowest Ceiling: None			Ft. AGL	Visibility: 10 SM	Altimeter: 29.91 "Hg
Temperature: 27 °C		Dew Point: 18 °C	Wind Direction: 280		Density Altitude: Ft.
Wind Speed: 12		Gusts:	Weather Conditions at Accident Site: Visual Conditions		
Visibility (RVR): Ft.		Visibility (RVV) SM	Intensity of Precipitation:		
Restrictions to Visibility: None					
Type of Precipitation: None					

Accident Information					
Aircraft Damage: Destroyed		Aircraft Fire: None		Aircraft Explosion: None	
Classification: U.S. Registered/U.S. Soil					

- Injury Summary Matrix	Fatal	Serious	Minor	None	TOTAL
First Pilot	1				1
Second Pilot					
Student Pilot					
Flight Instructor					
Check Pilot					
Flight Engineer					
Cabin Attendants					
Other Crew					
Passengers					
- TOTAL ABOARD -	1				1
Other Ground					
- GRAND TOTAL -	1				1

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**FACTUAL REPORT**
AVIATION

NTSB ID: IAD04LA022

Occurrence Date: 05/22/2004

Occurrence Type: Accident

Administrative Information

Investigator-In-Charge (IIC)

Paul R. Cox

Additional Persons Participating in This Accident/Incident Investigation:

Tim Welles
Soaring Society of America
Hobbs, NMFrank Gurish
FAA/FSDO
Harrisburg, PA